THE EFFECT OF TRANSGLUTAMINASE ADDITION ON THE QUALITY ALTERATIONS OF RAINBOW TROUT MINCE

PINAR YERLIKAYA[1*], NALAN GOKOGLU[1], HANIFE AYDAN YATMAZ[2], ILKNUR UCAK[1]

[1]Akdeniz University, Faculty of Fisheries, Antalya, Turkey

[2]Akdeniz University, Food Safety and Agricultural Research Center, Antalya, Turkey

pyerlikaya@akdeniz.edu.tr

EFEKTI DODATKA TRANSGLUTAMINAZE NA PROMENE KVALITETA MLEVENOG MESA DUŽIČASTE PASTRMKE

Apstrakt

Efekat transglutaminaze na kvalitet ribljeg mlevenog mesa ispitan je u toku skladištenja u frižiderima. U ove svrhe, enzim mikrobijalna transglutaminaza (MTGase) u razmeri od 0.2%, 0.5% i 1.0% je dodavana u mleveno meso pastrmke (*Oncorhynchus mykiss).*

pH vrednost mlevenog mesa pastrmke je opala na kraju skladištenja na hladnom, a najniži skor (6.00±0.01) je određen kod uzoraka koji su tretirani sa 5% enzima. U zavisnosti od vrednosti TVB-N (ukupni isparljivi azot), riblje mleveno meso je održalo svoj kvalitet tako da je moglo da se konzumira osmog dana nakon skladištenja na hladnom. Međutim, TVB-N vrednost kontrolnih uzoraka se povećala mnogo brže u odnosu na druge tretmane. TMA-N (trimetilamin azot) vrednosti su se povećale tokom skladištenja, a najviši skorovi su zabeleženi kod kontrolnih uzoraka na kraju peroda skladištenja. Dodatak MTGaze (mikrobialna transglutaminaza) nije uticala na ukupan sastav slobodnih amino kiselina među tretiranim grupama. Zabeleženo je da je progres ukupnih slobodnih amino kiselina potisnut dodatkom MTG-a. Povećanje koncentracije enzima je pozitivno uticalo na sprečavanje rasta ukupne količine psikrofilnih i koliformnih bakterija i najbolji rezultati dobijeni su dodavanjem MTG-a koncentraciji od 1.0%. Povećanje koncentracije enzima je pozitivno uticalo na senzorna svojstva ribljeg mlevenog mesa.

Ključne reči: transglutaminaze, dužičasta pastrmka, rok trajanja, hladno skladištenje.

Abstract

The effect of transglutaminase on the quality of fish mince was determined during refrigerated storage. For this purpose, the proportions of 0.2%, 0.5% and 1.0% microbial transglutaminase enzyme (MTGase) was added into trout (*Oncorhynchus mykiss)* mince meat. The pH value of trout mince decreased at the end of the cold storage and the lowest scores (6.00±0.01) were determined with the samples treated with 0.5% enzyme. The fish mince kept its consumable "good" quality on the 8th day of cold storage depending on total volatile basic nitrogen (TVB-N) values. However, TVB-N values of control samples increased rapidly comparing to the other treatments. The trimethylamine nitrogen (TMA-N) values increased during storage and the highest scores were recorded in control samples at the end of the storage. The addition of MTGase caused no difference on the total free amino acid content among the treatment groups. It was recorded that the progress in total free amino acids was suppressed with the addition of MTGase. The increase in enzyme concentration met successful results in hindering the growth of total psychrophilic bacteria and coliform bacteria and the best results were obtained with the addition of MTGase in the concentration of 1.0%. The increase in the enzyme concentration affected the sensory scores of fish mince positively.

Keywords: Transglutaminase, rainbow trout, shelf life, cold storage